

Extreme Measures: A National Descriptive Analysis of Closure and Restructuring of Traditional Public, Charter, and Private Schools

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Overview

The decision to close or restructure a school is one of the most contentious and wrenching that education leaders ever make. Closures force teachers to find new jobs, require students to move to new schools, and consequently upend friendships and social networks. They also affect communities, as schools serve as anchors of social engagement. These “extreme measures” clearly have a significant effect on those involved, though they may occur anyway because of budget deficits, old buildings, declining enrollment, persistent low performance, and/or other factors.

Restructuring differs from closure because schools remain open, but with different educators or governance, which makes this type of change less extreme for students and communities. Restructuring can also be a result of low performance, but other factors may also be involved.

In this study, we ask: What are the annual closure and restructuring rates of all schools across the United States, and how have these rates changed over time? Also, what factors predict closure and restructuring? We draw the following conclusions:

- The average annual closure rates of charter, private, and traditional public schools (TPS) between 2014 and 2018 were 5.4%, 2.9%, and 1.1%, respectively. The restructure rate of charter schools was about 1.6% annually and 0.5% for TPS. The closure rate for charter schools that we report is somewhat higher than [prior reports](#), and we discuss potential reasons for this.
- Closure rates have been relatively steady in the charter and TPS sectors over the past two decades, but closure rates have been declining over the past several years in all sectors.
- Student enrollment is the most consistent predictor of school closure/restructuring across sectors. This is especially true in private schools.

- In elementary/middle TPS and charter schools, student test scores predict closure/restructuring nearly as strongly, or more strongly, than enrollment. Schools with high achievement levels and/or high achievement growth are less likely to experience closure/restructuring.
- While enrollment and achievement are the strongest predictors of closure/restructuring, the percent of students of color also predicts closure/restructuring. This is most apparent in charter and private schools.

Our results suggest that closures and restructurings are driven mainly by financial and academic considerations. On the other hand, we discuss ways in which the forces behind failing schools' performances may be difficult to uncover with this and other types of quantitative analysis. The fact that achievement levels strongly predict closure and restructuring, for example, raises the question, why is achievement lower in schools with more students of color and higher poverty rates? While not the focus of analysis, we discuss the complex processes underlying these quantitative relationships.

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Background

The conversation around school closures and restructuring often questions whether schools with higher levels of students of color and economically disadvantaged students are disproportionately affected by these disruptive events. In this study, we examine how student demographics, as well as school quality and enrollment, predict the likelihood of closures and restructuring. Our analysis is designed to test whether demographics predict closure and restructuring after controlling for these other factors.

It is important to start by considering what we mean by these extreme measures. We define school closures as those cases where buildings cease to operate as schools at least temporarily. Closures can be especially difficult for the students and educators who have spent a large share of their lives with one another, but these decisions still occur for reasons including the age and quality of facilities and schools' financial and academic situations.

Closures can also affect their communities. Schools often function as community anchors (e.g., as places where people vote in local elections and as locations for community meetings). Neighbors get to know one another in part because they see one another and their children walking to school and interacting in school activities. When schools close, these opportunities for interaction are lost and empty buildings can become symbols of decline. While there is less quantitative evidence on this topic, there is reason to believe that housing values decline, and communities may deteriorate in other ways [when schools close nearby](#).

Restructurings differ because, in these cases, the school operations continue, but with a substantial and involuntary change in the personnel serving students and/or a change in the governing body. For TPS, the most common example is reconstitution, where school leaders and some teachers are replaced and the new school is placed under closer government scrutiny. Charter schools also experience restructuring when, for example, the charter authorizer—the government-appointed oversight body—decides to turn control over to another management organization. In contrast to closures, school restructurings are less extreme because the schools continue to operate. Still, from an educational standpoint, closures and restructuring are both “extreme measures.” (Note that we have

broadened the definition of restructuring beyond normal usage to accommodate the fact that our analysis includes not only TPS but also charter schools.)

A growing body of research has examined the effects of closures/restructuring on students’ academic achievement in specific districts. The results have been mixed, with both positive and negative effects on students across locations. We have also learned about why the effects on students vary across studies and locations: closure/restructuring effects depend on the performance of schools where the interventions occur and on the performance of schools that displaced students end up in. When education leaders close or restructure the very lowest performing schools, students are almost guaranteed to end up in higher performing schools. When this happens, students seem to [benefit academically](#). But sometimes the schools experiencing these extreme measures are not among the lowest performing, and these are the cases where students seem to end up worse off academically. As with other policies, the effects of closure and restructuring depend on policy implementation.

Unfortunately, we know little about how often closures and restructurings arise or where and why they occur. Improving our understanding of the patterns of school closures and restructuring is important for several reasons.

- Closures and restructurings are among the most extreme events that ever occur in education.
- Given prior evidence that closures and restructurings improve students’ academic outcomes only under certain conditions, it is important to understand how common these conditions are. We need to better understand implementation.
- Though federal pressure to close and restructure low-performing schools has been declining, closures and restructurings still occur on a regular basis.
- With increased recognition of systemic racism, there is growing concern that closures and restructurings might occur not because of poor school performance, but, for example, because of unconscious or conscious bias and inequities.

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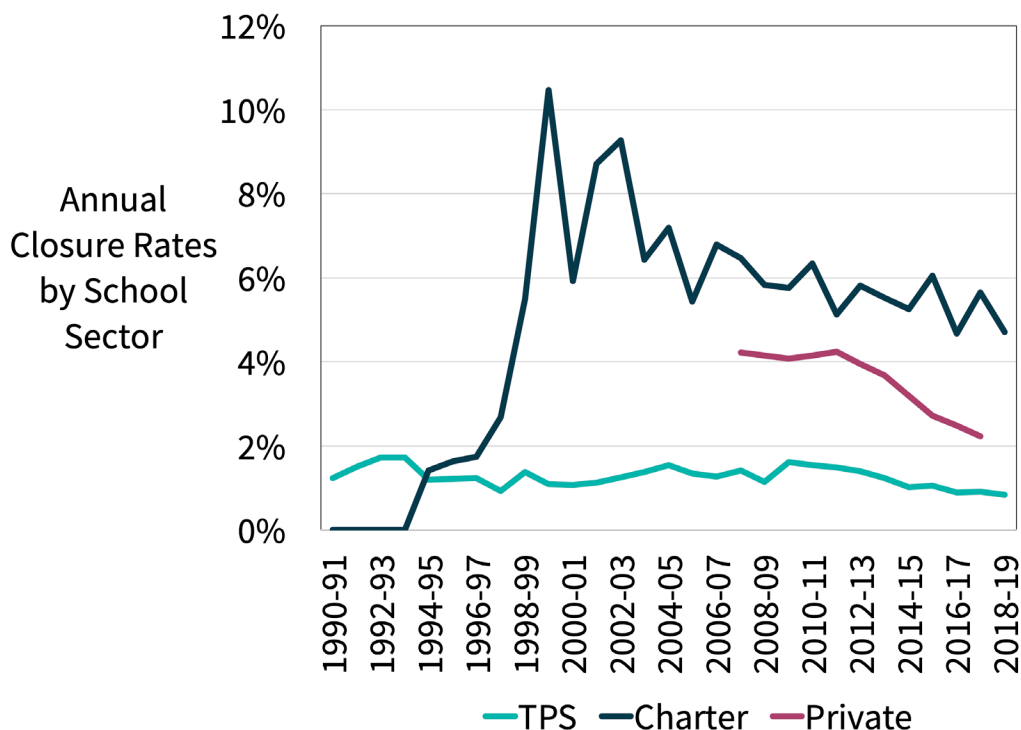
We are not the first to study this topic. Our work is most similar to a prior study by Stanford’s [CREDO](#) center that also used data from many states and found not only that schools with higher test scores are less likely to close, but also that schools with more students of color and higher poverty levels are more likely to close. That same study also found that schools with lower enrollment and schools located in urban areas are more likely to close.

We build on this prior work in several ways. First, we provide clear definitions of closure and restructuring, especially those of charter schools, and describe the problems with existing data for measuring their occurrences. Second, we double the number of states in the analysis and provide some of the first evidence of the private school closure rates. Third, we expand the work beyond closures to include restructurings. Fourth, particularly with TPS and charter schools where there are more years of data than private schools, we are able to describe the trends in closure rates going back several decades. Fifth, we identify and study many predictors of school closure and restructuring using measures of achievement, including achievement levels and achievement growth, and GreatSchools.org’s user-generated 1-5 star Community Ratings.

What Are the Trends in School Closure and Restructuring?

Figure 1 shows the levels and trends in TPS, charter, and private school closures for elementary, middle, and high schools. Between 2014 and 2018, the average closure rates for charter, private, and TPS were 5.4%, 2.9%, and 1.1%, respectively. These more recent years are particularly important because they give us a sense of the present situation. Also, the quality of data is higher in more recent years, so these are likely more accurate than prior years.

Figure 1. Annual Closure Rates Vary by School Sector and Have Been Gradually Declining



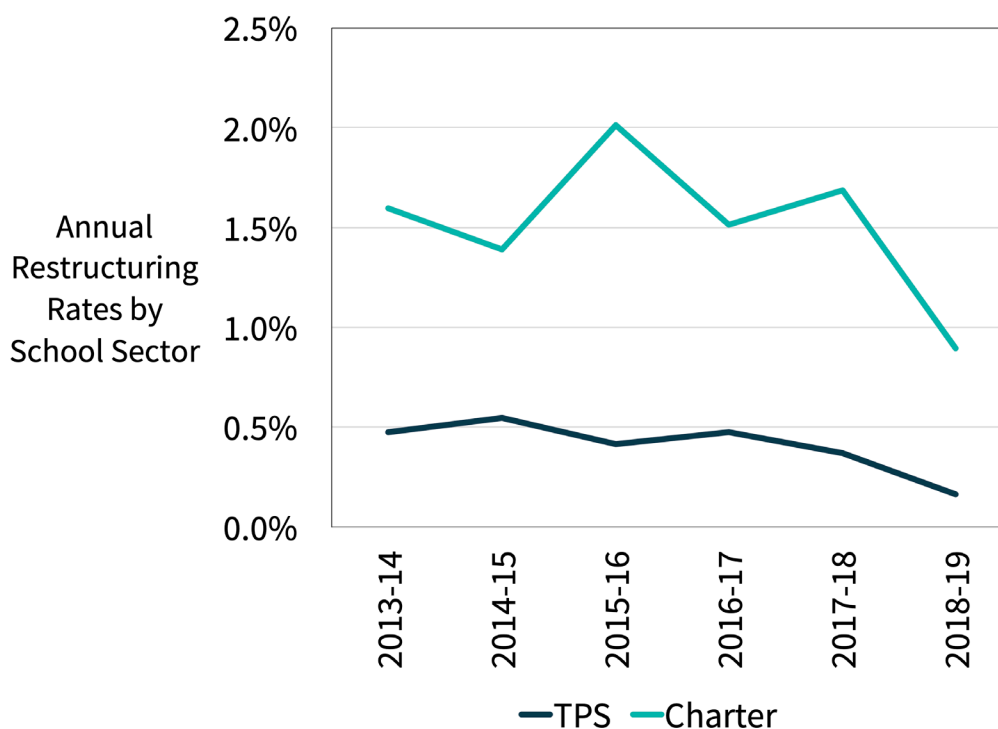
Notes: Closure rates include elementary, middle, and high schools.

Over the past decade, closure rates have been declining. This is especially true in the private sector where a sharp drop began around 2011. While this recent decline aligns with other data suggesting a similar decrease in the closure of Catholic schools, we observe this decrease for all types of private schools (Catholic, other religious, and non-sectarian).

For charter schools, there is a sharp increase in the closure rate from 1996 to 2000, which seems to reflect that some of the earliest charter schools were not well positioned to succeed. The charter closure rate declines gradually after 2000. The steady closure rate after 2000 is noteworthy, given the rapid expansion of charter schools during this period. This could reflect several factors: the improvement in charter authorization processes if authorizers are learning to better identify [high-performing charter schools](#); the shift to larger charter and education management organizations (CMOs) which have greater management and fiscal capacity and [academic growth](#); the fact that support systems for charter schools, such as industry advocacy groups, were starting to expand during this period; and/or declining willingness by authorizers to close/restructure charter schools. For TPS, the closure rate has been much smoother, with slight peaks in the early 1990s and in the 2005-06 and 2009-10 school years.

Next, we consider the restructuring rate. From 2014 to 2018, TPS and charter schools, including elementary, middle, and high schools, experienced an average 0.5% and 1.6% restructuring rate respectively. The fact that restructuring rates are lower than the closure rates for TPS and charter schools is noteworthy. But the relationship between the charter and TPS rates is similar to Figure 1—charter schools are about three times more likely to experience interventions than TPS. Because private schools do not receive government funding, they are not subject to restructuring.

Figure 2. Charter Schools Have Higher Restructuring Rates Than TPS



Notes: Restructuring rates include elementary, middle, and high schools.

At the end of this brief, we have also provided a breakdown of average state-by-state closure/restructuring rates from highest to lowest. These results show considerable variation across states, though we leave a deeper examination of these patterns for future research.

We also obtained data from the National Alliance of Public Charter Schools (NAPCS), an organization that advocates on behalf of charter schools. The NAPCS data suggest a closure rate of 3.2% between 2014 and 2018, versus our 5.4% over the same period of time. (They did not provide data on restructurings.) We have identified two likely reasons for the differences in results between our analysis and theirs. First, they define charter closures in terms of whether the organization ceases to operate a school, whereas we focus on whether the *building* continues to operate as a school. There is no one correct way to define closure, and we have focused on the use of the building in part because of what this means for the local community. A second difference is that NAPCS collected additional data to address errors in the way in which charter schools are identified in federal data, which might inflate our closure numbers in the charter sector to an unknown degree.

What Factors Predict Closure and Restructuring?

A key objective of this study is to understand what factors predict school closures and restructuring. Three main factors are often considered to affect these decisions: financial, quality, and demographic factors. These factors guided our analysis and choice of possible predictors.

Regarding *financial factors*, for example, schools might close because they are subject to economies of scale, which makes it difficult for schools to function effectively with a small number of students. Similarly, school districts and organizations in charge of groups of charter and private schools might close schools because the organizations as a whole experience financial hardship and school closures can save money. In our analysis, we measure financial considerations based on **school enrollment size** (i.e., the number of students enrolled in the school).

School quality has received more attention over the past two decades because of expanded accountability of publicly funded schools for test scores and high school graduation rates. TPS and charter schools might close because the government decides they are under-performing. While there are many ways to think about school quality, our analysis focuses on three measures: **test score levels**, **test score growth**, and **user reviews** from the national non-profit organization GreatSchools.org. One reason for including the community reviews from GreatSchools.org is that this is the only quality measure available for private schools.

Student demographics have also been a focus in the conversation about school closures and restructuring. In our analysis, we focus on the **percent students of color** and **percent low-income students** as two main measures of how student demographics predict closure/restructuring. There is growing concern that the negative effects of closures and restructurings disproportionately impact students of color and those from low-income families. This is a significant issue, but a larger question is how and why student demographics are correlated with the financial and academic factors mentioned above.

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None of these measures is perfect. This is one reason why we include multiple measures (two demographic measures and three quality measures) and why we draw conclusions only when we see consistent patterns across the measures.

We specifically examine which of these factors predict the likelihood of a school closure or restructuring, after controlling for each of the other factors. In studying predictors of closures and restructuring, we combine these events into a single indicator of “extreme measures.” That is, we are predicting whether a closure or a restructuring arises. This keeps the analysis more concise. The results are similar when we examine closure and restructuring separately (see the technical report).

One challenge is that the various predictors are all on different scales. To make it easier to compare them, we divide each by the standard deviation across schools. This method is commonly used with test scores, and it is useful here as well. Figure 3 therefore indicates the predicted change in closures/restructurings when each factor increases by one standard deviation, or the equivalent of moving from the 50th percentile nationally to the 84th percentile. For example, the number we report for student enrollment is the increase in predicted probability of closure/restructuring when we increase enrollment levels from the national median (50th percentile) to the 84th percentile.

Overall Predictors of Closure/Restructuring

Figure 3 shows how each of the six measures predict school closure/restructuring. Higher enrollment and academic achievement measures consistently predict lower closure/restructuring rates in every sector. For example, among TPS, increasing enrollment by one standard deviation is associated with a 1.15 percentage point drop in the probability of closure/restructuring. Achievement levels, achievement growth, and GreatSchools.org Community Ratings are also negatively associated with closure/restructuring. This suggests that these factors may be driving decisions behind closures and restructurings.

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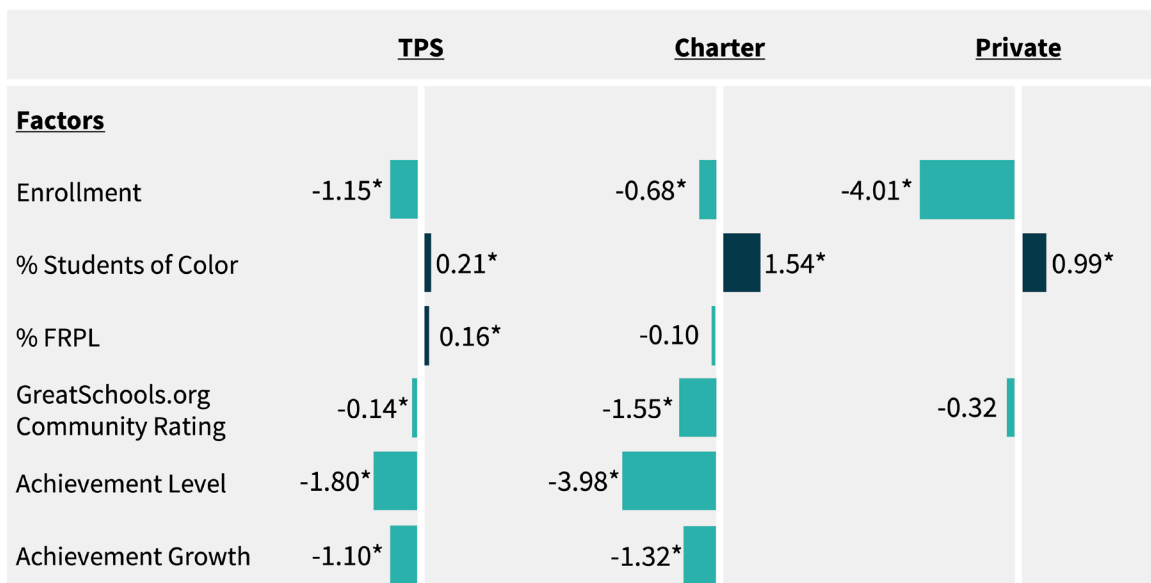
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In contrast, student demographics—specifically percent students of color—predict higher rates of closures/restructuring. There are a number of possible reasons that demographics might predict closures/restructuring. For TPS and charter schools, these decisions are made by elected officials and their appointees, and it may be that families of color and those with low incomes are less likely to have their voices heard by decisionmakers (i.e., they may have less power in these political processes). While these measures play a smaller role than other factors, the fact that student demographics predict closures/restructuring even after we account for enrollment and school quality suggests that there are issues of equity in how these decisions are being made, which may reflect conscious or unconscious bias in closure/restructuring decisions.

Figure 3. High Achievement Outcomes and High Enrollment Are Associated with Less Closure/Restructuring

Percentage point change in likelihood of closure/restructuring when factor increases one standard deviation

■ Closure/Restructuring More Likely
■ Closure/Restructuring Less Likely



Notes: TPS and charter schools analysis includes elementary and middle schools only. Analysis of private schools includes all schools. These results come from the regression results in Appendix Table F6 (Columns 3-5) in the associated technical report and focus on data from 2013-14 to 2017-18. The estimates for each factor reflect the predicted change in closures/restructurings given a one school-level standard deviation increase in the factor (nationally standardized). Each estimate above reflects how much a given factor predicts closure/restructuring, after controlling for the other listed measures (as well as whether the school is located in an urban area). The % of students eligible for free or reduced-price lunch (FRPL), achievement levels, and achievement growth, are not available for private schools. An asterisk indicates that differences in school sector predictors are statistically significant.

Results by Sector

The results vary across sectors. In TPS, achievement metrics are most important, followed by enrollment, while demographics are only slightly related to closure/restructuring. For private schools, the strongest predictor is clearly enrollment levels. Increasing private school enrollment by one standard deviation is associated with a 4.01 percentage point drop in the probability of private school closure. This is most likely due to the dependence of private schools on tuition revenue, which depends heavily on enrollment levels. We might have expected the same result for charter schools, whose revenue is also tied to enrollment levels. Enrollment does matter in charter schools, but achievement metrics and GreatSchools.org Community Ratings are the dominant factors, followed by demographics. This could be because charter schools operate under performance-based contracts that are up for occasional renewal, whereas TPS and private schools are not formally reviewed for continuation.

Conclusion

The purpose of this analysis is to better understand the levels, trends, and patterns of school closure and restructuring. We find that school closure and restructuring rates vary by sector and have been declining in recent years. The average closure/restructuring rates are highest among charter schools, followed by private schools, and then TPS.

Our results are generally consistent with the idea that financial and academic considerations are the greatest drivers of closures and restructurings. Findings show that student enrollment is the most consistent predictor of school closure/restructuring across all sectors. However, test performance is the strongest predictor of closure/restructuring in TPS and charters.

While enrollment and achievement are the greatest predictors of closure/restructuring, schools with larger shares of students of color are more likely to experience closure/restructuring across all sectors. This finding may indicate that families of color are not heard by decisionmakers during these processes, which may reflect their diminished political power to influence these decisions. However, we cannot fully examine the dynamics of political power without additional data (e.g., demographics of elected officials on a national scale).

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Also, the role of these racial inequities may be understated here because, for example, the academic and financial considerations that are stronger predictors of closure/restructuring are driven partly by histories of inequity. More generally, while studying the predictors of closure and restructuring quantitatively is one of the few ways to understand the factors involved on a national basis, this approach does have its limits and we encourage the reader to examine other types of [research](#) on this [topic](#).

Additional research is also needed to understand the effects of closures and restructurings on students, parents, educators, and communities under different conditions. Still, we view this study as a significant advance in our understanding of closure and restructuring, providing the first national analysis on the topic that covers essentially every school in the United States over many decades and includes both closures and restructuring.

How Did We Carry Out the Analysis?

Our main data source is the National Longitudinal School Database (NLS), an annual near census of all schools in the country from 1991 to 2020 created by the authors and a team of researchers at the REACH Center. The NLS integrates the federal Common Core of Data, data on student achievement from the Stanford Education Data Archive (SEDA), user-generated review data from the non-profit organization GreatSchools.org, the federal Private School Survey, and additional data on private schools that we collected manually.

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The technical report associated with this brief provides an extensive discussion of how we used these data to create measures of closure and restructuring. Here, we focus on the most unusual feature of our data: the extension to private schools. Every two years, the federal government collects information on the universe of private schools from state departments of education and local advocacy groups representing private schools. The government then contacts these schools and requests that they fill out a survey to provide additional information. Since filling out the survey is not mandatory, the response rate is roughly 75 percent. It is difficult to determine whether a school that drops out of the survey has closed or simply not responded to the survey. To address this problem, we conducted extensive manual internet searches of all schools that did not respond to the federal survey to determine which schools were really closed. If the schools appeared to be closed based on our internet searches, then we assigned the closure year as the year the school stopped responding to the federal survey request. This allows us to provide some of the first analysis of private school closure. We used these data, combined with the more complete data on traditional public and charter schools, to measure the rates of closure and restructuring across sectors.

Potential Predictors of Closure and Restructuring

Our analysis focuses on three broad types of predictors: student demographics, school characteristics, and school quality.

Student Demographics: Our measures of student demographics include the percent of students of color and the share of students eligible for free or reduced-price lunch (FRPL).

School Characteristics: We use measures of school enrollment levels and the location of schools in urban areas from the federal Common Core of Data (CCD). Enrollment levels may be important, for example, because of the connection between enrollment and school revenue, especially as it is easier to operate schools that have at least several hundred students, due to economies of scale. Urbanicity may be related to political dynamics and, anecdotally, closures and restructurings seem more likely to arise in urban areas.

School Quality: We use three measures of school quality, and the first two are related to student test scores. Specifically, we use achievement levels and growth measures from SEDA for elementary/middle TPS and charter schools. Achievement levels and growth measures are created based on standardized test scores administered in 3rd through 8th grade in mathematics and English/Language Arts (ELA) from 2009 to 2016. These measures have limitations as their creators have emphasized. Test scores do not measure everything we expect schools to accomplish. The measures are also not available for private schools and are missing for many TPS and charter schools as well. Also, there appears to be some bias in the measures regarding charter schools. To address this concern, the technical report also provides various tests to check whether main conclusions hold regardless of the data source and quality.

To address the limits of test scores, we also include user reviews that capture a wider range of factors that families care about. This also allows us to build in a quality measure for private schools. GreatSchools.org is a national non-profit organization and the largest user review platform for schools. The GreatSchools.org Community Rating is a 1 to 5-star rating generated by user reviews on school profiles from parents, students, teachers, and others reported directly in the GreatSchools.org portal. However, the GreatSchools.org Community Rating suffers from very high rates of missingness. Some schools have no Community Rating at all, and among those that do, the number of reviews per school is often small. These forms of missingness may be correlated with the perceived quality. On the other hand, the Community Rating distribution across the 1-5 range is similar to random samples from prior research, which means that the broad patterns we observe in the data may still be informative. No single measure captures all dimensions of school quality or captures any dimension across all sectors. Since our analysis suggests that each of the various school quality measures is flawed in different ways, we draw conclusions later in the study based on those patterns that are consistent across the various measures. Further, we carry out additional checks that are available in the technical report associated with this brief.

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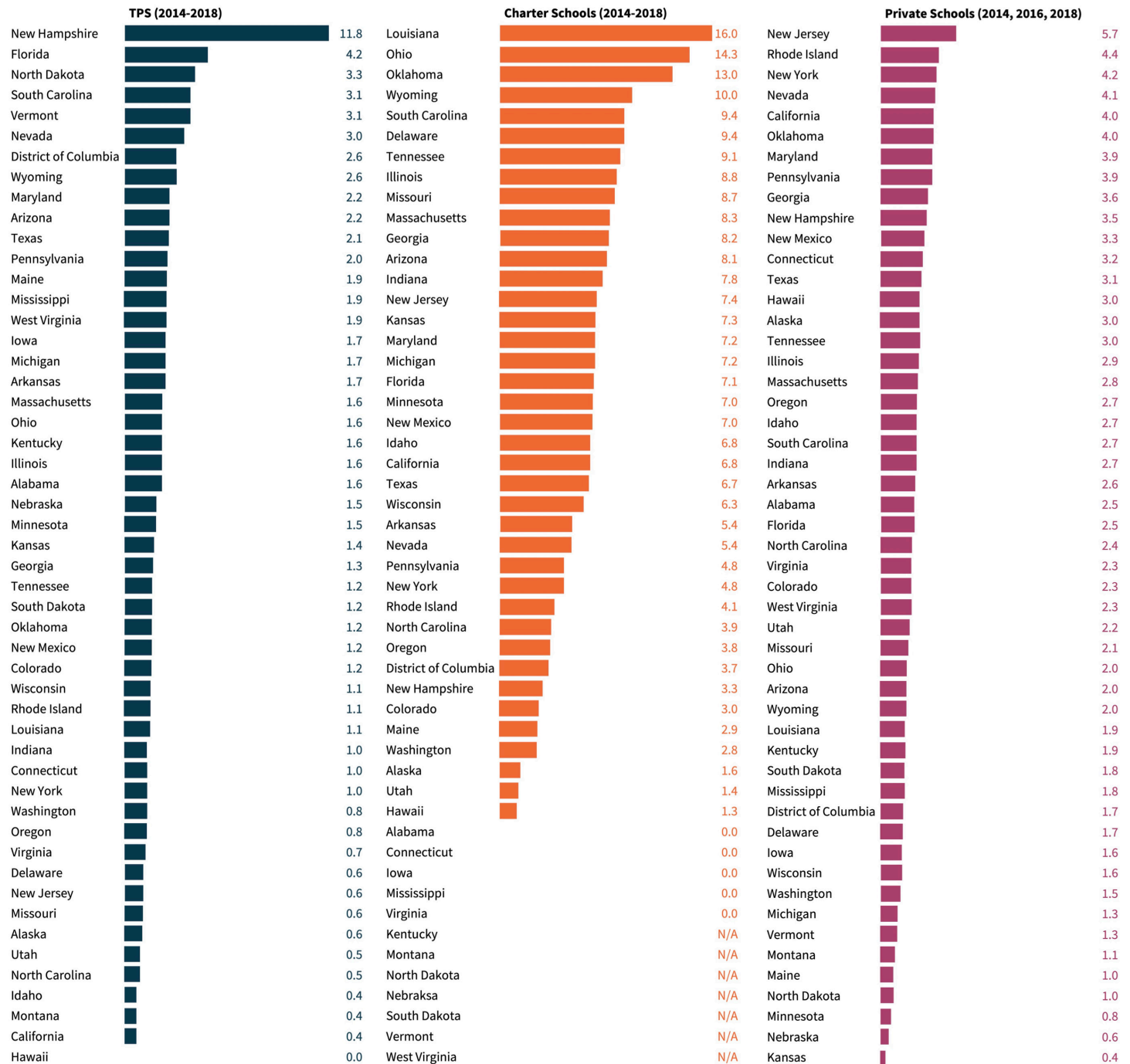
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In all cases, we use predictor variables that precede the closures and restructuring decisions because the goal is to understand how school conditions affect subsequent intervention decisions. For the quality measures, the measures do not vary over time. For the demographic measures and enrollment, we have nearly complete data in every year, so we do not take averages; that is, we allow the measures to vary over time. The test score and achievement growth measures are an average by school from 2009-2016. The GreatSchools.org Community Ratings do vary over time, but many schools do not have a measure in certain years, so we take an average of 2008-2010 for each school.

We also limit the data we analyze in two important ways. First, though we do describe some trends going back to 1991, we focus mostly on more recent years because data quality is higher in these years, especially for private school closure and charter/TPS restructurings. Second, we restrict the analysis to “regular” schools that have at least 20 students. This excludes, for example, alternative, career/technical education, and special education schools, as well as child-care centers.

Appendix

The analysis of national data shows average closure/restructuring rates by sector and state from 2014 to 2018 as illustrated below.



Notes: N/A indicates states with few or no charter schools. While all states have both TPS and private schools, not all states have charter schools and some states have so few charter schools that it is difficult to say anything meaningful about their rates. These states with few charter schools are omitted.

How Does This Relate To Other REACH Research?

Advancing REACH's goal of informing and improving school choice policy for the betterment of disadvantaged students, this study examines the strongest predictors of school closures and restructurings. In two related studies, REACH researchers are also doing a deeper dive into this topic in Michigan. One forthcoming study will address the impact of Michigan school closures on the outcomes of students' attending those schools, including what types of schools affected students end up attending. Another study will carry out similar analyses when schools open. These studies recognize the bigger picture that schools are opening and closing on a regular basis and it is important to understand the dynamics and effects of these decisions.

About the National Center for Research on Education Access and Choice (REACH)

Founded in 2018, REACH provides objective, rigorous, and applicable research that informs and improves school choice policy design and implementation, to increase opportunities and outcomes for disadvantaged students. REACH is housed at Tulane University with an Executive Committee that includes researchers from Tulane, Michigan State University, Syracuse University, and the University of Southern California.

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Corresponding Technical Paper

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